



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Jonathan J. Wierer Jr., Michael R. Krames, Mihail M. Sigalas
Assignee: Lumileds Lighting U.S., LLC
Title: Photonic Crystal Light Emitting Device
Serial No.: 10/691,026 Filing Date: October 21, 2003
Examiner: Sara W. Crane Group Art Unit: 2811
Docket No.: LUM-03-03-02

San Jose, California
July 27, 2005

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR § 1.97(b)**

Dear Sir:

Pursuant to 37 C.F.R. § 1.56, § 1.97 and § 1.98, the documents listed on the accompanying forms PTO/SB/08A and PTO/SB/08B are called to the attention of the Examiner for the above patent application. Copies of the cited foreign patent documents and articles are enclosed. Copies of the cited US Patent documents are not enclosed as the requirement under 37 CFR 1.98 (a)(2)(i) is waived.

Citation of these documents shall not be construed as:

1. an admission that the documents are necessarily prior art with respect to the instant invention;
2. a representation that a search has been made; or
3. an admission that the information cited herein is, or is considered to be, material to patentability as defined in § 1.56(b).

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R. Leiterman 7/27/05
Signature Date

Respectfully submitted,

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Title: Photonic Crystal Light Emitting Device
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Docket No.: LUM-03-03-02
Filed: October 21, 2003
Group Art Unit: 2811

Dear Sir:

Transmitted herewith are the following documents in the above-identified application:

- (1) Return Receipt Postcard;
- (2) This Transmittal Letter;
- (3) Information Disclosure Statement (1 page);
- (4) Forms PTO/SB/08A and PTO/SB/08B citing 38 references (4 pages);
- (5) Twenty four (24) cited references;
- (6) Copies of the cited US Patent documents are not enclosed as the requirement under 37 CFR 1.98 (a)(2)(i) is waived.

- ☒ No additional fee is required.
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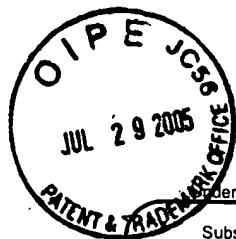
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R. Leiterman
Rachel V. Leiterman
Attorney for Applicant(s)
Reg. No. 46,868



PTO/SB/08A (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 1 of 4

Complete if Known

Application Number	10/691,026
Filing Date	October 21, 2003
First Named Inventor	Jonathan J. Wierer Jr.
Art Unit	2811
Examiner Name	Sara W. Crane
Attorney Docket Number	LUM-03-03-02

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
		US- 2002/0130311 A1	9-19-2002	Lieber et al.	
		US- 2003/0089899 A1	5-15-2003	Lieber et al.	
		US- 6,770,353 B1	8-3-2004	Mardilovich et al.	
		US- 2003/0016895 A1	1-23-2003	Holm et al.	
		US- 5,371,025	12-6-1994	Sung	
		US- 6,831,302 B2	12-14-2004	Erchak et al.	
		US- 2005/0145877 A1	7-7-2005	Erchak	
		US- 2005/0087757 A1	4-28-2005	Erchak et al.	
		US- 2005/0087754 A1	4-28-2005	Erchak	
		US- 2005/0051787 A1	3-10-2005	Erchak et al.	
		US- 2005/0040419 A1	2-24-2005	Erchak et al.	
		US- 2004/0207323 A1	10-21-2004	Erchak et al.	
		US- 2004/0207320 A1	10-21-2004	Erchak	
		US- 2004/0109644 A1	6-10-2004	Assefa et al.	
		US-			
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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T ⁶
		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				
		WO 2004/004927 A2	1-15-2004	BTG International		
		WO 2004/032193 A2	4-15-2004	Nanosys, Inc.		
		WO 2004/034025 A2	4-22-2004	Nanosys, Inc.		
		WO 2004/038767 A2	5-6-2004	President and Fellows		
		EP 0 874 405 A2	10-28-1998	Mitsubishi Cable Ind.		
		WO 03/023857 A2	3-20-2003	Lucea Ag		

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Examiner Name	Sara W. Crane
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Sheet	2	of	4
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Sheet	3	of	4	Attorney Docket Number	LUM-03-03-02

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		J. RISTIC et al., "Characterization of GaN quantum discs embedded in AlxGa1-xN nanocolumns grown by molecular beam epitaxy," Physical Review B68, (2003), The American Physical Society, pp. 125305-1 to 125305-5.	
		J.NOBORISAKA et al., "Catalyst-free growth of GaAs nanowires by selective-area metalorganic vapor-phase epitaxy," Applied Physics Letters 86, (2005), American Institute of Physics, pp. 213102-1 to 213103-3.	
		T. HAMANO et al. "New Technique for Fabrication of Two-Dimensional Photonic Bandgap Crystals by Selective Epitaxy," Jpn. J. Appl. Phys. Vol. 36 (1997), pp. L286 to L288.	
		S. HAFFOUZ et al., "Effect of Magnesium and Silicon on the lateral overgrowth of GaN patterned substrates by Metal Organic Vapor Phase Epitaxy," MRS Internet J. Nitride Semicond. Res. 3, 8 (1998), 1998-1999 The Materials Research Society, pp. 1 to 6.	
		G. KIPSHIDZE et al., "Controlled growth of GaN nanowires by pulsed metalorganic chemical vapor deposition," Applied Physics Letters 86, (2005) American Institute of Physics, pp. 033104-1 to 033104-3.	
		KWA-MOK KIM et al., "Growth and characterization of single-crystal GaN nanorods by hydride vapor phase epitaxy," Applied Physics Letters, Vol. 81, No. 12, 16 September 2002, pp. 2193 to 2195.	
		S. HAN et al, "Controlled growth of gallium nitride single-crystal nanowires using a chemical vapor deposition method," J. Mater. Res., Vol. 18, No. 2, Feb. 2003, Materials Research Society, pp. 245 to 249.	
		HWA-MOK KIM, et al., "Nanoscale Ultraviolet-Light-Emitting Diodes Using Wide-Bandgap Gallium Nitride Nanorods," Adv. Mater.2003, 15, No. 7-8, April 17, WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim, pp. 567 to 569.	
		T. KUYKENDALL ET AL., "Metalorganic Chemical Vapor Deposition Route to GaN Nanowires with Triangular Cross Sections," Nano Letters, 2003, Vol. 3, No. 8, American Chemical Society, pp. 1063 to 1066.	
		HWA-MOK KIM, et al., "High-Brightness Light Emitting Diodes Using Dislocation-Free Indium Gallium Nitride/Gallium Nitride Multiquantum-Well Nanorod Arrays, Nano Letters 2004, Vol. 4, No. 6, American Chemical Society, pp. 1059 to 1062.	

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Art Unit 2811

Examiner Name Sara W. Crane

Attorney Docket Number LUM-03-03-02

Sheet 4 of 4

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		V.V. MAMUTIN, et al., "Growth of Self-Organized GaN Nanostructures on Al ₂ O ₃ (0001) by RF MBE., Proc. Int. Workshop on Nitride Semiconductors, IPAP Conf. Series 1, pp. 413 to 416.	
		J. SU et al., "Catalytic growth of group III-nitride nanowires and nanostructures by metalorganic chemical vapor deposition," Applied Physics Letters 86, (2005), American Institute of Physics, pp. 013105-1 to 013105-3.	
		W. D. ZHOU et al, "Electrically injected single-defect photonic bandgap surface-emitting laser at room temperature," Electronic Letters, 31st August 2000, Vol. 36, No. 18, pp. 1541 to 1542.	
		P. BHATTACHARYA et al., "Electrically Injected Photonic Bandgap Microcavity Light Sources," LEOS 2001 14th. Annual Meeting of the IEEE Lasers & Electro-Optics Society, San Diego, Ca, Nov. 11-15, Vol 1 of 2, pp. 76 to 77.	
		S. KITAMURA et al, "Fabrication of GaN Hexagonal Pyramids on Dot-Patterned GaN/Sapphire Substrates via Selective Metalorganic Vapor Phase Epitaxy, Jpn. J. Appl. Phys., Vol. 34 (1995), Part 2, No. 9B, 15 September 1995, pp. L1184 to L1186.	
		M. NAGAHARA et al., "Selective Growth of Cubic GaN in Small Areas on Patterned GaAs (100) Substrates by Metalorganic Vapor Phase Epitaxy," Jpn. J. Appl. Phys., Vol. 33 (1994), Part 1, No. 1B, January 1994, pp. 694 to 697.	
		A. KIKUCHI et al., "Self-Organized InGaN/GaN Multiple Quantum Well Nanocolumn Light Emitting Diodes Grown On (111) Si Substrate," Department of Electrical and Electronics Engineering, Sophia University, 1 page.	

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